

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-3 (Cancelled)

4. (Currently Amended) A process for preparing butadiene from n-butane having the steps of comprising

- A) providing a feed gas stream a comprising n-butane;
- B) feeding the feed gas stream a comprising n-butane and an oxygenous gas as co-feed into at least one first dehydrogenation zone and nonoxidatively catalytically autothermally dehydrogenating n-butane in the presence of a dehydrogenation catalyst comprising platinum or palladium or both platinum and palladium to obtain a product gas stream b comprising n-butane, 1-butene, 2-butene, butadiene, hydrogen, low-boiling secondary constituents and in some cases optionally steam;
- C) feeding the product gas stream b of the nonoxidative catalytic dehydrogenation and an oxygenous gas into at least one second dehydrogenation zone and oxidatively dehydrogenating 1-butene and 2-butene in the presence of an oxydehydrogenation catalyst based on a multimetal oxide comprising Mo and Bi to obtain a product gas stream c comprising n-butane, 2-butene, butadiene, hydrogen, low-boiling secondary constituents and steam, said product gas stream c having a higher content of butadiene than the product gas stream b;
- D) removing hydrogen, the low-boiling secondary constituents and steam to obtain a C₄ product gas stream d substantially consisting of n-butane, 2-butene and butadiene;

- E) feeding the C₄ product gas stream d into a distillation zone and removing a butadiene/butane mixture as the product of value stream e1, to leave a stream e2 consisting substantially of n-butane and 2-butene;
 - F) recycling the stream e2 into the first dehydrogenation zone.
5. (Cancelled).
6. (Previously Presented) The process according to claim 4, wherein the feed gas stream containing n-butane is obtained from liquefied petroleum gas (LPG).
7. (Previously Presented) The process according to claim 4, wherein said nonoxidative catalytic n-butane dehydrogenation is carried out in a fixed bed tubular reactor or tube bundle reactor.